

# **EXHIBIT B**

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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ERICSSON INC. AND TELEFONAKTIEBOLAGET  
LM ERICSSON (“Ericsson”),  
Petitioner

v.

REGENTS OF THE UNIVERSITY OF MINNESOTA (“Regents”),  
Patent Owner

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**PETITION FOR INTER PARTES REVIEW**

**OF**

**U.S. PATENT NO. 8,774,309**

Ericsson respectfully requests *inter partes* review of claims 1, 5, 13, 16, 17, 19, 22, and 23 of U.S. Patent No. 8,775,309 (the “’309 patent”).

## I. INTRODUCTION

Modern wireless communications technology permits large numbers of devices to communicate while “sharing” the same electromagnetic spectrum. One of the key enabling technologies for this “sharing” is called “orthogonal frequency division multiplexing,” or “OFDM.” OFDM was developed in the 1980s and 1990s and is widely used for cellular and other wireless communications.

Over the years, a number of techniques have been developed to improve OFDM communications by separating the desired signal from “noise,” i.e., electromagnetic interference. Such techniques include broadcasting signals having known values, referred to as “training symbols” or “pilot symbols,” as well as broadcasting signals having zero values, referred to as “null symbols” or “zero symbols.” An OFDM receiver compares the signal *actually* received for each of the broadcast training symbols and null symbols to the signal *expected* to be received in order to detect and account for problems in the communication channel, such as interference and/or frequency offset. The positions of the training symbols and null symbols were sometimes changed or “hopped” across various time slots and frequencies to help detect and account for problems across the entire relevant communication spectrum.

The '309 patent applies these known techniques to a particular type of OFDM technology called "Multiple-Input/Multiple-Output" (i.e., "MIMO"). MIMO OFDM technology uses multiple antennas at both the transmitter and receiver of a communication system. Because it uses multiple antennas at both communication endpoints, MIMO has additional sources for potential communication problems compared to having a single antenna at each end. The claims of the '309 patent are directed at techniques for inserting training symbols and null symbols in MIMO OFDM communications.

The problem with the '309 patent, however, is that all of its claimed techniques were already known. More than a year before the provisional patent application leading to the '309 patent was filed, the U.S. Patent Office issued U.S. Patent No. 5,867,478 ("Baum"). Baum discloses *all* of the techniques of the challenged independent claims and many of the techniques of the challenged dependent claims. And Baum discloses these techniques for use in an OFDM communication system having multiple transmit antennas and multiple receive antennas (i.e., in a MIMO environment). The remaining claimed techniques are provided by U.S. Patent No. 6,449,246 ("Barton"), which describes how to use the training symbols and null symbols to measure and account for problems in the communication channel. Collectively, Baum and Barton render obvious all of the challenged claims of the '309 patent.

**VIII. CONCLUSION**

For the reasons set forth above, Ericsson asks that the Patent Office order an *inter partes* review trial and then proceed to cancel claims 1, 5, 13, 16, 17, 19, 22, and 23. The undersigned further authorizes payment for any additional fees that may be due in connection with this Petition to be charged to Deposit Account No. 08-1394.

Respectfully submitted,

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